ROYAL ASTRONOMICAL SOCIETY.

VOL. VIII. *November* 12, 1847. No. 1.

CAPT. W. H. SMYTH, R.N., Vice-President, in the Chair.

The Rev. J. Slatter, M.A. of Rose Hill, near Oxford, was balloted for, and duly elected a Fellow of the Society.

FLORA.

Discovered at Mr. Bishop's Observatory, South Villa, Regent's Park, by Mr. Hind.

"On October 18, while comparing the excellent chart of Professor Knorre, hour iv. with the heavens, I discovered what seemed to be a star, ninth magnitude, near Bessel, v. 48, unmarked on the map; and from my acquaintance with this part of the heavens I had no hesitation in deciding upon its nature. A few hours' observation proved it to be a new planet, the eighth of the remarkable group between the orbits of *Mars* and *Jupiter*. Since the epoch of discovery, the brightness of the planet has considerably increased, and now equals that of a star of the eighth magnitude.

"At Mr. Bishop's request, Sir John Herschel has named the planet, *Flora*, with a flower," (*a rose?*) "for the symbol."

Observations.

CAMBRIDGE. (Professor Challis.)

Greenwich M. T.	R. A.	N.P.D	No. of Measures.	Reference Star.
1847. h m s	h m s	° ′ ″		
Oct. 19 9 51 50·3	5 3 49·48	75 57 23·1	1	Bessel, v. 48
20 9 57 58·9	3 58·80	58 28·7	10	——
21 11 59 44·2	4 5·95	59 35·4	8	——
15 3 15·4	4 6·12	75 59 43·0	Meridian	
24 12 2 14·5	4 10·54	76 2 31·9	6	——
25 10 47 17·6	4 7·18	3 27·9	6	——
26 11 53 0·7	4 0·95	4 27·3	4	——
Nov. 1 11 5 0·3	2 33·04	9 25·8	4	——
11 26 30·4	5 2 32·93	9 26·0	6	Bessel, v. 11
9 10 7 17·2	4 58 20·31	13 22·4	10	Bessel, iv. 1312
13 43 25·7	58 13·11	13 28·4	Meridian	
10 13 38 47·4	4 57 30·61	76 13 40·3	——	

"The extra-meridional observations were taken with the Northumberland equatoreal. The following is the assumed mean place, Jan. 1, 1847, of Bessel, v. 48, as determined by two circle and four transit observations :—

R.A. = 5 h 3 m 17·60 s N.P.D. = 75 ° 49 ′ 45·9 ″.

The other two stars were taken from Weisse's Catalogue."

MARKREE. Large Equatoreal.* { E. J. Cooper, Esq. & Mr. Graham.

Greenwich M.T.	R.A.	Parallax.	Decl.	Parallax.	Obs.
	h m s	s	° ′ ″	″	
Oct. 27·493196	5 3 53·20	−[8·4960] *p*	+13 54 40·0	+[9·8444] *p*	16
Nov. 2·606546	2 5·72	−[7·4348]	49 45·7	+[9·8113]	11
5·481421	5 0 43·57	−[8·4590]	+13 48 7·0	+[9·8387]	10

The assumed apparent places of stars of comparison are

	h m s	° ′ ″	
Oct. 27	5 3 46·32	+13 44 2·2	Weisse's Bessel, v. 54
Nov. 2	5 1 39·79	+13 47 48·1	—— v. 11
5	5 0 41·93	+13 42 59·8	Lalande, 9671
	5 1 39·21	+13 47 53·0	Lalande, 9714
	5 1 39·86	48·0	Weisse's Bessel, v. 11

BERLIN. (Professor Encke.)

1847.	Berlin M.T.	R.A.	Decl.	
	h m s	° ′ ″	° ′ ″	
Oct. 24	10 6 4·6	76 2 47·85	+13 57 31·22	
	11 20 5·9	48·02	27·75	
	13 19 20·2	42·30	25·03	
	15 28 40·9	37·85	21·05	
25	14 3 6·1	76 1 47·2	+13 56 25·3	Doubtful.
	14 48 49·8	49·2	18·0	Merid. Obs.

ALTONA. Merid. Circle. { Prof. Schumacher & M. Petersen.

1847.	Altona M.T.	R.A.	Decl.
	h m s	° ′ ″	° ′ ″
Oct. 22	15 0 37·9	76 2 28·5	+13 59 17·8
25	14 48 46·8	1 33·9	56 20·3
26	14 44 44·7	76 0 0·0	55 24·7
31	14 23 56·7	75 42 50·3	+13 51 11·1

* To obtain a large field with the Markree Equatoreal, Mr. Graham has applied a reticule, consisting of a square formed by four steel bars. This is adjusted by making a star traverse the diagonal. The occultations of the planet and compared stars by the bars furnished the data of the computed places. The stars of comparison were carefully selected before observing, a very necessary precaution.

The horizontal parallax, *p*, is expressed in seconds of space throughout the number.

HAMBURG. (M. Rümker.)

1847.	Hamburg M. T. h m s	R. A. ° ′ ″	Decl. ° ′ ″	No. Obs.
Oct. 22	11 13 47·4	76 2 21·2	+13 59 39·2	8
24	9 50 51·2	2 50·0	57 44·3	2
25	10 41 35·3	1 50·9	56 30·5	6
	14 48 46·3	1 31·2	56 19·1	Merid. Circle.
26	10 15 45·4	76 0 32·4	55 43·0	1
27	9 43 40·0	75 58 21·5	54 46·6	5
28	5 37·0	55 57·4	53 43·1	1
29	1 30·0	52 26·3	53 3·5	2
30	9 54 25·3	48 17·8	52 7·3	7
31	14 23 56·3	42 48·1	51 14·0	Merid. Circle.
Nov. 2	9 6 21·7	75 32 52·0	50 2·0	1
8	13 48 32·2	74 43 26·7	46 46·8	Merid. Circle.
9	43 56·5	33 28·7	46 32·0	—
10	39 18·7	22 58·4	46 21·7	—
12	13 29 56·8	74 0 22·2	+13 46 8·6	—

IRIS.

Observations.

MARKREE. Meridian Circle. { E. J. Cooper, Esq. & Mr. Graham.

Greenwich M. T.	R. A. h m s	Decl. ° ′ ″	Parallax.	
Aug. 21·435051	19 51 7·36	−13 42 29·2	+[9·9669] *p*	
Sept. 11·372296	43 34·03	14 15 16·94	[9·9684]	
29·326986	19 48 50·50	25 27·3	[9·9690]	Good
Oct. 19·284242	20 5 58·33	6 20·5	[9·9680]	
21·280346	20 8 13·83	−14 2 21·3	+[9·9678]	

Sept. 11 2d and 3d wires, badly taken; mere glimpses of planet.
Oct. 19 6 wires, not good; planet faint.
21 7 wires, not good; planet faint.

Equatoreal and Square-bar Micrometer.

Greenwich M. T. 1847.	R. A. h m s	Parallax.	Decl. ° ′ ″	Parallax.	No. Obs.
Aug. 19·515320	19 52 30·41	+[8·2555] *p*	−13 38 46·9	+[9·9573] *p*	10
27·460530	47 29·65	[8·0450]	53 8·9	[9·9650]	10
28·455677	46 59·91	[8·0281]	13 55 2·0	[9·9650]	24
Sept. 10·431816	43 35·51	[8·1474]	14 14 17·3	[9·9645]	38
13·437374	43 37·54	[8·1474]	17 37·1	[9·9645]	35
18·415734	44 22·79	[8·1843]	21 58·7	[9·9638]	14
Oct. 9·333986	19 56 6·32	[7·8683]	20 30·2	[9·9674]	6
15·397950	20 1 48·97	[8·3955]	13 6·7	[9·9539]	7
16·352440	2 48·16	[8·1875]	11 31·7	[9·9631]	10
20·361227	20 7 10·70	+[8·2827] *p*	−14 4 17·5	+[9·9598]	7

The log multipliers of the horizontal parallax will, when added to the log horizontal parallax, give the corrections in time and arc respectively.

Mr. Graham has appended the apparent places of all the stars of comparison, as deduced from Bessel's Zones, with the partial results where several stars have been used. Mr. Graham's reduced places exceed those of Weisse by $0^s.09$, which must consequently be subtracted from the R.A. here given, to make them comparable with those of other observers who have followed Weisse. The planet has been compared each day the same number of times very nearly with the different stars. The references given below are to Weisse's *Catalogus Stellarum ex Zonis Regiomontanis*, Petropoli, 1846.

Aug. 19	xix.	1306	Sept. 18	xix. 1068, 1160, 1175
27		1182, 1187, 1200	Oct. 9	1319
28		1182	15	xx. *a*, 81
Sept. 10		1068, 1160, 1175, 1187	16	*a*, 81
13		1068, 1073, 1160, 1175, 1187	20	81, 101

		h	m	s	°	′	″	
Aug. 28	App. Place, 1182,	19	46	25·01	−13	56	25·3	Mer. Circle.
Oct. 15	—— *a*	20	2	58·66	−14	13	24·5	——

Hamburg. Meridian Circle. (M. Rümker.)

1847.	Hamburg M.T. h m s	R.A. ° ′ ″	Decl. ° ′ ″
Sept. 24	7 34 25·5	296 35 7·5	−14 24 27·1
27	23 21·5	296 55 44·3	25 32·0
Oct. 3	4 1·8	297 50 17·0	24 38·4
4	7 0 48·9	298 1 1·2	24 5·8
10	6 42 2·7	299 13 32·7	19 39·6
11	39 0·7	299 27 2·6	18 36·4
14	30 3·7	300 9 51·8	14 51·1
15	27 7·8	300 24 54·3	13 20·3
16	6 24 13·1	300 40 15·2	14 11 38·9
25	5 59 4·5	303 14 19·4	13 53 15·8
26	56 23·3	303 33 0·9	50 45·1
28	51 4·0	304 11 18·6	45 7·8
29	48 24·4		42 11·4::
Nov. 2	38 7·5	305 52 17·7	13 29 35·7
10	18 19·6	308 47 37·4	12 58 36·8
12	5 13 53·0		−12 49 48·4::

Transit. (M. George Rümker.)

	Hamburg M.T. h m s	R.A. ° ′ ″		Hamburg M.T. h m s	R.A. ° ″
Sept. 7	8 38 48·5	295 58 14·6	Sept. 16	8 3 29·3	295 59 18·7
10	26 43·5	53 46·9	27	7 23 21·5	296 55 50·3
13	14 57·1	54 18·7	Oct. 3	4 1·8	297 50 13·9
15	8 7 16·3	295 56 55·6	4	7 0 48·9	298 1 0·7

Ephemeris.

By M. d'Arrest, from his last Elements.

At 7 hours, Greenwich Mean Time.

1847.	R.A. Appt Eqx. h m s	Hy Varn. s	N.P.D. ° ′ ″	Hy Varn. ″	Hor. Par. ″	Log *r*.
Nov. 12	20 38 22·30	+3·895	102 49 18·5	−11·43	4·3	0·31326
13	39 56·22	3·932	44 40·6	11·73	4·3	31277
14	41 31·05	3·969	39 55·7	12·02	4·2	31228
15	43 6·73	4·004	35 3·8	12·31	4·2	31179
16	44 43·23	4·038	30 4·8	12·61	4·2	31130
17	46 20·55	4·072	24 58·7	12·90	4·2	31081
18	47 58·67	4·105	19 45·5	13·19	4·2	31032
19	49 37·60	4·138	14 25·3	13·49	4·2	30983
20	51 17·29	4·170	8 58·1	13·78	4·1	30934
21	52 57·77	4·202	102 3 23·8	14·08	4·1	30886
22	54 38·99	4·232	101 57 42·4	14·37	4·1	30837
23	56 20·91	4·262	51 53·9	14·67	4·1	30789
24	58 3·56	4·291	45 58·2	14·97	4·1	30741
25	20 59 46·89	4·320	39 55·5	15·26	4·0	30693
26	21 1 30·91	4·349	33 45·8	15·55	4·0	30645
27	3 15·62	4·377	27 28·9	15·85	4·0	30597
28	5 0·99	4·404	21 4·9	16·15	4·0	30549
29	6 47·01	4·431	14 33·8	16·44	4·0	30501
30	8 33·67	4·457	7 55·8	16·73	4·0	30454
Dec. 1	10 20·96	4·483	101 1 10·6	17·03	4·0	30406
2	12 8·87	4·509	100 54 18·5	17·32	3·9	30359
3	13 57·38	4·534	47 19·2	17·62	3·9	30312
4	15 46·52	4·559	40 12·9	17·91	3·9	30265
5	17 36·24	4·584	32 59·5	18·21	3·9	30219
6	19 26·56	4·609	25 38·9	18·51	3·9	30172
7	21 17·45	4·633	18 11·2	18·81	3·9	30125
8	23 8·93	4·656	10 36·3	19·11	3·9	30079
9	25 0·96	4·679	100 2 54·2	19·41	3·8	30032
10	26 53·54	4·703	99 55 4·7	19·73	3·8	29986
11	21 28 46·68	+4·726	99 47 7·8	−20·03	3·8	0·29940

NEPTUNE.

Observations.

Professor Chevallier says, "The accompanying observations of *Neptune* have been made by Mr. R. A. Thompson, the observer at the Durham Observatory, and have been completely reduced.

"The meridian observations in right ascension, with the exception of those of Aug. 7 and Oct. 18, were well taken: the meridian observations in north polar distance have been made under unfavourable circumstances.

"The observations with the equatoreal were made with a telescope by Fraunhofer, of about eight feet focal length, and above six inches aperture, with a position wire-micrometer.

"Each comparison consists of one observation of difference of north polar distance, and of observations of two, or three, and, on Aug. 14, of four wires, for difference of right ascension.

"The star of comparison from Aug. 7 to Aug. 31, and on Sept. 2, was 38 *Aquarii*. On Sept. 1, 3, 4, the comparisons were made with 38 and 40 *Aquarii*: afterwards with 40 *Aquarii* only.

"The places of the stars of comparison have been computed from the British Association Catalogue, meridian observations of those stars having shewn that those positions are very nearly correct.

"All the observations are corrected for the effects of refraction and parallax, assuming the horizontal equatoreal parallax to be $0''.3$; and the results are compared with Mr. Adams's ephemeris of *Neptune* given in the *Monthly Notices* of the Royal Astronomical Society."

DURHAM. Meridian. { Professor Chevallier & Mr. R. A. Thompson.

1847.	Greenwich M.T.	R.A.	Obs^{d}—Calc^{d}.	N.P.D.	Obs^{d}—Calc^{d}.	Remarks.
	h m s	h m s	s	° ′ ″	″	
July 22	14 13 49	22 8 19·78	−0·33	102 6 50·6	+5·8	
Aug. 7	13 9 25	6 49·18	1·52	15 13·5	−4·3	R.A. only on one wire; approximate.
13	12 45 13	6 13·47	0·30	18 46·7	+2·9	
19	12 21 2	5 36·18	0·29	22 10·1	−2·4	
Sept. 2	11 24 31	4 8·69	0·55			Just visible.
3	20 29	4 2·70	0·42	30 58·4	+7·8	
4	11 16 27	3 56·60	0·43	31 28·4	+4·4	
16	10 28 6	2 46·40	0·57	37 53·8	+6·4	
20	10 12 1	2 24·74	0·53	39 47·6	+2·4	
Oct. 8	8 59 52	1 2·11	0·52	47 7·4	−1·5	
18	8 20 0	0 29·01	1·04	50 3·1	+2·6	Not good; cloudy.
27	7 44 18	22 0 9·65	−0·79	102 51 42·0	+0·7	

Equatoreal.

1847.	Greenwich M.T. h m s	R.A. h m s	Obs^{d}—Calc^{d}. s	N.P.D. ° ′ ″	Obs^{d}—Calc^{d}. ″	No. of Comp^{s}.	Remarks.
Aug. 7	11 26 57	22 6 50·46	−0·27	102 15 16·7	+1·2	1	
9	12 15 33	38·21	0·25	16 23·8	−1·0	5	
13	11 23 40	13·83	0·30	18 43·8	+2·0	7	
14	10 18 42	6 7·94	0·28	19 12·8	−2·2	7	
19	13 19 45	5 35·77	0·44	22 11·9	−2·1	4	
23	14 16 32	10·45	0·41	24 35·1	−0·6	7	
24	9 23 18	5 5·42	0·42	25 2·1	−1·5	3	Faint; not good.
31	10 25 10	4 21·44	0·41	29 10·6	+3·3	7	Faint; not good.
Sept. 1	11 37 3	14·79	0·57	29 44·7	+1·6	6	
2	12 1 17	8·63	0·46	30 16·3	−1·4	2	Very faint; uncertain.
3	11 37 2	4 2·66	0·39	30 50·4	−0·5	11	
4	11 47 59	3 56·55	0·34	31 29·0	−0·8	9	
10	13 14 34	19·82	0·81	34 43·8	−0·1	5	
13	11 50 33	3 3·18	0·39	36 18·7	+1·6	7	
14	8 52 28	2 58·07	0·51	36 44·2	−0·1	8	
20	10 55 24	2 24·56	0·54	39 46·0	0·0	7	
28	8 35 49	1 44·97	0·44	43 19·6	−0·2	6	
Oct. 21	9 31 49			50 37·4	−3·2	4	
27	8 41 37	0 9·53	0·84	51 40·7	−1·0	6	
28	7 54 2	8·28	0·57	51 47·3	−2·0	6	Haze; Planet faint.
Nov. 2	5 38 44	22 0 1·60	1·32	52 18·8	0·0	2	Obs. incomplete in R.A.
9	7 34 12	21 59 58·92	−0·90	102 52 30·4	−0·1	8	

Hamburg. Meridian Circle. (M. Rümker.)

1847.	Hamburg M.T. h m s	R.A. ° ′ ″	Decl. ° ′ ″
Sept. 26	9 41 44·9	330 28 32·6	−12 42 32·8
27	37 44·2	27 21·3	43 0·0
28	33 43·4	26 6·9	43 24·9
Oct. 3	13 41·5	20 31·4	45 27·5
4	9 9 41·7	330 19 31·7	−12 45 45·4

Poona. (Capt. Jacob, B.E.)

1847.	Poona M.T. h m	Planet—Star. R.A. m s	Decl. ′ ″	Star of Comparison.
April 28	17 0	+2 56·6	+2 57	Weisse, xxii. 123
29	16 59	0 52·55	−1 13·7	—— 173
30	17 7	0 56·8	−0 53·7	—— 173
May 3	16 40	1 8·8	+0 6·0	—— 173
4	17 6	1 12·3	+0 24·2	—— 173
5	17 2	1 15·8	+0 41·7	—— 173
12	16 51	1 37·0	+2 27·2	—— 173
13	16 51	1 39·6	+2 38·8	—— 173
July 27	11 20	1 22·6	−5 25·1	—— 123
Aug. 15	10 11	0 14·6	+0 29·6	—— 105
17	10 53	+3 20·5	−2 22·7	38 *Aquarii.*

Longitude of Poona, $4^{h}\ 55^{m}\ 45^{s}$ East.

LASSELL'S SATELLITE OF NEPTUNE.

Observations.

STARFIELD. (Mr. Lassell.)

Greenwich M.T. 1846.					
Oct. 10	Satellite seen for the first time. Position estimated 60° n.f.				
Nov. 11	—	45 s.p.			
30	—	45 s.p.			
Dec. 3	—	50 n.f.	Distance 3 diameters		
1847.					
July 7	—	50 n.f.			
8	—	60 n.f.			
22 13h 0m	—	40 s.p.	—	$1\frac{1}{4}$	diameters
25 12 40	—	45 n.f.	—	3	
26	—	50 n.f.			
Aug. 1 11 24	—	40 n.f.	—	4	
3 12 12	—	70 s.p.	—	2	
7 10 30	—	40 n.f.	—	3	
10 11 42	—	40 s.p.	—	2	
14	No satellite visible.				
18 11 12	—	45° n.f.	—	3	
31 9 30	—	20 n.f.	—	1	
11 30	—	5 n.f.	scarcely 1		
Sept. 2 12 6	—	50 s.p.			
3	—	5 or 10° s.p.	sc. 1 diam.		
4 11 30	—	30 or 40 n.f.	(very unfavourable)		
6 9 0	—	a little n.f.	(very unfavourable)		
8 11 6	measured 45°·6 s.p.	Dist. measured 15″·67			
9	estimated 10 n.p.	(unfavourable)			
13	measured 60°·4 s.p.	Dist. measured 16″·0			
14	—	41 ·78 s.p.			
28 8 30	—	53 ·25 n.f.	—	16·0	
29 8 15	—	37 ·05 n.f.	—	13·4	
Oct. 2 8 54	—	24 ·63 s.p.	—	10·7	
10 10 42	—	48 ·85 n.f.			
13 8 18	—	44 ·78 s.p.	—	16·40	
14 7 48	—	29 ·92 s.p.	—	9·84	
16 8 12	—	47 ·09 n.f.	—	18·20	
21 7 30	—	60 ·95 n.f.			
Nov. 1 8 0	Satellite scarcely visible; seen nearly north				
8 7 42	—	55°·38 n.f.	Dist. measured 14″·27		
9 7 30	—	42 ·61 n.f.	—	13·82	

"The above observations were made with the 20-feet equatoreal and position and distance micrometer; powers, 205, 323, and 400. There being no apparatus for illuminating the wires, sufficient light to see them was necessarily introduced into the field."

CAMBRIDGE, U.S. (Professor W. C. Bond.)

"1847, Oct. $25^d\ 7^h\ 45^m$. The satellite is south preceding the planet 40°. Distance, 15″·4. The latter is the mean of three observations, of which the extreme difference is 1″·4. The angle of position is liable to some uncertainty. Power, 300. The above were taken in bright moonlight.

"Oct. $27^d\ 7^h\ 30^m$. The satellite is north following 61° 30′. Distance, 13″·7. Powers, 300 and 1000. The power of 1000 seems to have the advantage in the distinctness with which the satellite is seen. The positions and distance are the mean of six determinations by two observers. Extreme difference of position, 1° 30′. Ditto of distance, 2″·7.

"Oct. $28^d\ 7^h\ 45^m$. Satellite is n.f. 43° 15′. Distance, 15″·0. Mean of nine observations, by two observers. Extreme difference of positions, 4°; ditto of distance, 1″·4. Powers, 400 and 1000. We have pretty strong evidence of the existence of another satellite, fainter and more distant from the primary than Lassell's.

"The above were obtained with the illuminated wires of the micrometer of the 23-foot refractor; aperture, 15 inches.* The object is one of extreme difficulty to measure with precision."

MISS MITCHELL'S COMET.

This comet was seen in America, on October 1, by Miss Maria Mitchell, of Nantucket,† and was observed at the Observatory of Cambridge, U. S. October 7. It was seen October 3, at Rome, by Father De Vico; October 7, by Mr. Dawes, with the naked eye, at Cranbrook; and October 11, by Mrs. Rümker, at Hamburg.

Mr. Dawes says that, on October 7, he remarked it "as a hazy star of the fifth magnitude, near *ω Draconis*. Examination with the $8\frac{1}{2}$-foot refractor proved it to be a large comet, its rapid motion being speedily detected. On the 11th, it had the light of a star of the fourth magnitude, near *η Herculis*. The nebulosity in the telescope extended over 30′, nearly round, much condensed in the centre, but without stellar nucleus. A star of the tenth magnitude (Herschel's fourteenth) was distinctly seen through the exact centre of the comet."

* The Cambridge U.S. equatoreal is $22^f\ 8^i$ focal length, and 15 inches aperture: it is by the same artist, of the same size, and upon the same construction, as the equatoreal of Poulkova. It stands on a very massive pier, which is insulated. The covering dome is 30 feet in diameter, revolving on eight cannon balls. An observing chair, of a novel construction, gives the observer complete command over his position. When the eye-piece is properly adjusted, there is no colour, except a purple tinge round very bright objects, such as *Venus* or the moon.

The telescope readily separates such stars as *γ Coronæ*, γ^2 *Andromedæ*, and Struve's "Vicinissimæ." The nebula, 27 *Messier* in *Vulpecula*, and the great nebula in *Orion*, are resolved into bright stars; the latter in the vicinity of the trapezium. There is no appearance of a ring to *Neptune* when viewed with high powers, though with lower powers there seems to be an elongation.

† This information comes from Professor W. C. Bond, of the Cambridge Observatory, U. S.

CRANBROOK. $8\frac{1}{2}$-foot Equatoreal. (Rev. W. R. Dawes.)

1847.	Greewich M. T. h m s	R.A. ° ′ ″	Parallax. ″	N.P.D. ° ′ ″	Parallax. ″	
Oct. 7	11 20 4	257 59 43·6	+1·767 *p*	19 43 46·9	−0·512 *p*	Argelander's Zones, 126, Nr. 63
	11 46 41					
8	7 29 37	254 38 39·7	+1·158 *p*			
	7 40 48			25 21 13·2	−0·022 *p*	A. Z. 123, Nr. 78
	8 14 36	254 31 27·6	+1·336 *p*	25 31 44·2	−0·109 *p*	A. Z. 123, Nr. 81
11	8 9 8			*a* +7 26·3	−0·500 *p*	
	8 35 11	*a* −13 52·5	+0·774 *p*			
	9 51 31	248 9 50·4	+0·782 *p*			
	10 24 19			52 22 24·0	−0·737 *p*	Lalande, 30327
13	7 21 40			*b* +16 24·4	−0·648 *p*	
	7 36 10	*b* +7 0·0	+0·615 *p*			
	8 22 14	246 5 26·6	+0·663 *p*			
	8 23 1			70 22 41·1	−0·701 *p*	Rümker, 5434
15	7 6 53	244 36 27·9	+0·579 *p*			
	7 21 6			86 0 17·9	−0·759 *p*	Rümker, 5418
17	7 9 50	243 24 48·6	+0·583 *p*	97 56 12·8	−0·804 *p*	*v* Ophiuchi

The apparent places of the stars of comparison are computed from the authorities quoted. The approximate places of *a* and *b* are

	Mag.	R.A. h m s	N.P.D. ° ′ ″
a	$7\frac{1}{2}$	16 33 51	51 20 49
b	8	16 24 1	69 43 49

"The comparison in north polar distance on the 15th was made with the declination circle, the distance being too great to be measured, as the others were, by the wire-micrometer."

VIENNA. (MM. Littrow & Schaub.)

	Vienna M. T. h m s	R.A. h m s	Parallax. s	Decl. ° ′ ″	Parallax. ″
Oct. 12	7 43 8·5	16 28 33·45	+0·0478 *p*	+29 32 54·1	+0·5720 *p*
14	8 47 23·4	21 11·84	0·0453	+11 23 28·1	0·7293
16	7 7 53·5	16 16 1·88	+0·0517	− 2 9 4·2	+0·7547

CAMBRIDGE, U. S. (Professor W. C. Bond.)

1847.	Cambridge M. T. h m s	R.A. h m s	Decl. ° ′ ″	No. Obs.	Star of Comparison.
Oct. 7	7 56 31	17 10 56·2	+70 1 18	2	*ζ Draconis*
9	6 48 11	16 44 14·4	55 31 51	1	Arg. Z. 13, Nr. 48
11	8 9 11	32 0·2	36 38 7	4	Lalande, 30500
14	7 42 54	20 34·7	9 51 17	3	Bessel, xvi. 466
15	7 27 27	17 59	+ 2 36 13	2	—— 367?
18	6 34 44	16 11 10·1	−13 18 49	4	—— 173

The apparent places of the stars have been derived directly from the *Hist. Cél.* and from Bessel's Zones. The *nomenclature* here given is from the recent reductions of those works. "From the 7th to the 14th inclusive, the observations were made with the large equatoreal (*see note*, p. 9), using the declination circle for comparing with the star. On the 15th, the 5-foot equatoreal was employed, using Troughton's micrometer with red light. On the 18th, the annular micrometer was used with the 5-foot equatoreal. The comet visible to the naked eye all the time."

Elements.

By M. d'Arrest.

T ... 1847, Nov. 14·44201, Berlin M.T.

π	274 14 1.1	Mean Equinox,
Ω	190 50 12·7	Jan. 0, 1847.
i	71 53 6·4	
Log q	9·5174122	Motion Retrograde.

By Mr. G. P. Bond.

Per. Pass. Nov. 14·6935, Cambridge, U.S. M.T.

Long. Per.	276 24	
Node.....	191 1	
Inclination	72 28	
Perihelion Distance...	0·3468	Motion Retrograde.

The comet may possibly be seen again at the end of the year; to facilitate the search, M. d'Arrest has computed the following

Ephemeris.

	R.A.	Decl.	Log Δ.
	o ′	o ′	
1847. Dec. 10	227 33	−9 45	0·1519
15	228 51	5 37	0·1541
20	230 8	−1 31	0·1547

MAUVAIS' THIRD COMET.

Observations. By Mr. W. W. Boreham, at Haverhill.

1847.	Greenwich M.T.	R.A.	Decl.	No. Obs.
	h m s	h m s	o ′ ″	
July 30	10 16 31·7	13 8 23·57	+72 16 33·3	3
Aug. 6	10 31 56·1	12 58 19·83	66 25 43·5	4
7	9 40 5·4	12 57 42·53	65 38 41·8	3
14	9 36 6·9	12 54 31·94	+60 24 46·9	2

COLLA'S COMET.

VIENNA. (MM. Littrow & Hornstein.)

	Vienna M.T. h m s	R.A. h m s	Parallax. s	Decl. ° ′ ″	Parallax. ″
Sept. 10	10 2 40·8	12 34 48·00	+0·0579 *p*	+54 47 25·3	+0·7888 *p*
13	8 29 49·1	12 43 0·81	0·0736	55 9 20·9	0·6028
Oct. 11	9 8 18·7	14 17 37·65	+0·0716	+58 25 38·3	+0·6950

Elements.

By M. Littrow.

Perihelion Passage, 1847, June 4·79225, Berlin M.T.

Longitude Perihelion	206° 18′ 28·″9	M. Eq. 1847·0.
Ascending Node	173 56 4·3	
Inclination	100 25 52·7	
Log. Per. Distance	0·3255424	

Computed from observations on May 16, July 16, and Sept. 13.

Ephemeris.

1847.	R.A.	N.P.D.	Log *r*.	Log. Δ.
Nov. 22	261° 2′·8	30° 58′·7	0·4592	0·4556
26	265 34·3	31 20·5	0·4636	0·4590
30	269 59·1	31 46·2	0·4681	0·4629
Dec. 4	274 16·4	32 15·0	0·4726	0·4673
8	278 24·9	32 46·7	0·4770	0·4722
12	282 24·4	33 20·4	0·4814	0·4776
16	286 14·3	33 55·5	0·4858	0·4833
20	289 54·4	34 31·6	0·4902	0·4894
24	293 24·8	35 8·0	0·4945	0·4959
28	296 45·8	35 44·3	0·4989	0·5027
32	299 57·7	36 20·1	0·5032	0·5097

SCHWEIZER'S COMET.

HAMBURG. (M. Rümker.)

1847.	Hamburg M.T. h m s	R.A. ° ′ ″	Decl. ° ′ ″
Sept. 27	8 46 55·1	294 50 3·6	+38 56 16·7
28	8 46 8·4	293 58 26·2	37 20 57·8
Oct. 2	9 25 5·0	291 12 33·8	31 26 38·4
4	8 48 58·0	290 10 59·5	+28 50 3·6

Elements. By Mr. N. Pogson.

Perihelion Passage, 1847, August 9·46479, Greenwich M.T.

Longitude Perihelion	21° 12′ 37·″5	Mean Eq.
Ascending Node...	76 48 28·3	Sept. 0, 1847.
Inclination	32 38 26·7	
Log. Least Distance	0·1718329	Motion Retrograde.

"Computed from observations on September 11, 19, and 27.

ANNULAR ECLIPSE OF OCT. 9, 1847.

The Astronomer Royal stated the substance of two letters respecting the solar eclipse of October 9, 1847; one, from M. Mauvais addressed to himself, and the other from M. Schaub, communicated by M. Le Verrier to Mr. Hind.

The *Bureau des Longitudes* assigned to MM. Mauvais and Goujon the station of Orleans, near the southern limit of the places where the eclipse was annular. Their attention was especially directed to those phenomena which are described by Mr. Baily in the tenth volume of the *Memoirs*.

The position of Orleans was particularly favourable for observing the appearances which present themselves at contact. "When the cusps of the sun were about a quarter of the moon's diameter apart, the advance of these points towards each other was very sensible, being almost as rapid as the movement of a star in the field of a transit instrument, but it was not uniform. The cusps appeared to wriggle forwards, sometimes faster, sometimes slower, with a *vermicular* motion."

"I saw distinctly," M. Mauvais says, "a luminous trace in advance of the cusp and in its prolongation, but at a distance of about 10″ the dark interval gradually diminished in extent at its extremities, and the detached luminous points grew larger and finally fused in one. Just before the definitive formation of the annulus, a series of points and luminous traces, more or less extended in the direction of the moon's limb (but all very thin in the perpendicular direction), were seen throughout the space between the cusps; all these grew gradually larger at the extremities, and finally united. The ring, when formed, was very thin, not exceeding a few seconds. I insist particularly on this point, that the dark intervals gradually decreased, not merely in a direction parallel to the moon's limb, but also in depth or perpendicular to the limb. They did not extend themselves into dark filaments, as described by Mr. Baily, in his *Memoir*, and as represented in his drawing."

"The appearances agree with Mr. Henderson's description (p. 39). There was nothing seen at Orleans which required for its explanation a phenomenon of *diffraction* or of *irradiation:* every thing seems accounted for by the irregularity of the moon's edge, the tops of the mountains having reached the limb of the sun, while a few rays escaped through the valleys."

M. Schaub observed at Cilly, in Styria. Latitude, 46° 13′ 20″ N. and 12° 55′ 25″ East of Paris. "With a magnifying power of 40 and a red shade, the formation of the ring took place without any irregularity. At this time the sun was a little clouded, but shortly after he became perfectly clear; and a power of 60 was applied, with a dark glass, which, combining complementary colours, gives white images. The lunar mountains were distinctly seen upon the sun. The limb of the moon undulated, but continued circular up to the time of the second contact. This contact did not take place in a continuous line; the tops of several mountains touched

the sun's limb at once, so that the cusps were connected by a series of luminous points separated from each other, but perfectly referable to the forms of the mountain previously seen."

"Of all the phenomena described by Mr. Baily (*Mem. R. A. S.* vol. x.), I only saw those represented in fig. 1; but to make this agree with my observation, the serrated portion should be diminished one-half.

"The duration of the annulus was $7^m\ 0^s{\cdot}4$, which should, perhaps, be increased 2^s or 3^s, on account of the clouds at the first contact. The second contact was estimated to take place at the disappearance of the luminous points. If the second contact be estimated from the formation of these points, then the duration must be shortened about 1^s."

SOLAR SPOTS.

Extract of a letter from Mr. J. H. Griesbach, to the President.

"I have great pleasure in sending you copies of a series of my drawings of the solar spots, from September 20th, to October 25th, 1843, complete, with the exception of one day; and I shall be happy to copy all the others, if you will let me know how you like them to be done. The telescope I use is a 6-foot Newtonian, the speculum 6 inches diameter. The position of the spots I often determine by receiving the image on a drawing-board: some of the drawings were made only from the view, but I have been careful to represent the changes in the form and nature of the spots, thinking that an extended series of drawings may in the end afford some indication of the nature of their cause. On the 27th of September, 1843, I made hourly drawings of the sun, and between four and five o'clock, three fresh spots broke out, two near the centre of the disc; they were not visible the following day. The changes in the form of the large spot which came into view on the 14th of October, 1843, are particularly interesting."

Mr. Griesbach's drawings were presented to the Society, with a drawing made on September 27, 1843, of *Jupiter, seen without his moons.* This rare phenomenon was also observed at Woodstock, Vermont, U. S.

Extract of a letter from the President, enclosing Mr. Griesbach's Communication.

"Herewith I enclose a letter from Mr. H. Griesbach, explanatory of the drawings of the solar spots, which I lately addressed to you, executed by him, and which, at my request, he has been good enough to copy for communication to the Astronomical Society, as a contribution to the history of the solar spots, and as the *commencement of a collection of such drawings*, which it appears to me highly desirable should be formed, with a view to securing, if possible, an unbroken series of such drawings, exhibiting a continuous view of the changes in the sun's surface for every day in every

year in future, and as near an approach to it in past years as can now be recovered. It seems high time that some attempt of the kind should be made on a systematic and regular plan, as the only probably effectual means of arriving at a knowledge of the laws which govern these mysterious phenomena, and the periods, if any, which they observe in their formation, and thence of elucidating the nature of the sun itself.

"No single observer, at a fixed locality, can, of course, with any amount of diligence, contribute more than a very fragmentary series of such observations; nor, considering the frequency of long-continued runs of cloudy weather extending over immense tracts of country, could even the united observations of all Europe avail to secure such a continuous series as there is a necessity of obtaining. If, however, it were to be made known to observers in every region of the globe, that a permanent establishment, such as the Astronomical Society, interested itself in the formation of such a collection, and had opened a *department in its archives for the reception and arrangement of such contributions from all quarters*, there can be little doubt that many individuals, resident in climates habitually serene, would be induced to make and contribute diurnal representations of the solar disc.

"Should the Astronomical Society think proper to issue any prospectus or notice, calling for such contributions, it would, of course, be desirable that the plan should be cast so as to secure a certain degree of uniformity in their execution, both as respects the hour or hours of the day, *when*, and the scale *on which*, they should be made. If made, for instance, at, or as nearly as possible at, noon, observations made on the same day in Europe, India, Australia, and America, would, in effect, furnish not merely a diurnal but a quarto-diurnal series, adding much to the interest of the whole. Moreover, the exceeding facility with which photographic processes are executed, and especially the short time which the *Talbotype* process occupies, makes their execution on a given scale, and with every requisite degree of precision, easily attainable.

"In the hope that such a collection may be set on foot, it is my intention, so soon as I can find leisure, to execute, and offer to the Society, a series of copies on a uniform scale, corresponding to Mr. Griesbach's (that is to say, in which the disc of the sun shall be represented by a circle $3\frac{1}{2}$ inches in diameter), of all the drawings I possess of the solar spots."

Eclipse of the Sun, April 15, 1847.

Capt. P. P. King, R.N. observed the beginning of this eclipse at Tahlee, Port Stephens, New South Wales, at $4^h\ 36^m\ 36^s{\cdot}8$, mean time at the place.

"Magnitude of eclipse (proportion of observed part to whole disk) 0·616 on northern limb.

Latitude, S..... 32° 40′ Longitude, E..... $10^h\ 8^m\ 8^s$

The longitude is computed from this eclipse by the data of the *Nautical Almanac:* Mr. Woolhouse's method."

M. d'Arrest finds, from a comparison of the places of ε *Indi* in the catalogues of Lacaille, Brisbane, and Taylor, that this star has a remarkable proper motion.

	R.A.	Decl.
	″	″
From 1750 to 1825	+ 6·02	−2·36
1825 1835	+13·21	−3·05

Professor Chevallier presented a working model of a machine for giving the time at places which are in sight of each other. A ball is let drop, as at Greenwich, Liverpool, &c.; but the motion is retarded and made nearly uniform by connecting it with a fly-wheel. There are horizontal rings attached to the staff at different heights, through which the ball drops; and the observer, being prepared, can estimate very nicely the moment at which upper and lower surfaces of the ball pass these rings.

Sweeping Ephemeris for the expected Comet of 1264 *and* 1556. From Mr. Hind's Tables in the *Monthly Notice* for April 1847.

	P. P. Jan. 11.		P. P. Feb. 10.		P. P. March 11.	
1847.	R.A. h m	N.P.D. ° ′	R.A. h m	N.P.D. ° ′	R.A. h m	N.P.D. ° ′
Nov. 22	13 38	100 13	12 37	100 17		
Dec. 2	14 24	101 44	13 7	101 42		
12	15 20	102 56	13 43	103 15	12 37	102 56
22	16 28	103 32	14 28	104 36	13 4	104 30
32	17 46	103 17	15 23	105 25	13 37	105 58

Mr. Cooper states that a star in Bessel's Zone 185, Weisse xx. 122, is not to be found in the heavens.

Capt. Jacob, at Poona, saw the companion of ν *Scorpii* double. The following measures were taken with a 5 foot telescope, power 152.

	Position.	Weight.	Distance.	Weight.
	°		″	
AB	336·4	41	40·53	25
BC	43·2	21	1·75	

The distance of BC is estimated: B = 7 mag., C = 8 mag.

The Astronomer Royal gave a brief account of the Observatory of Poulkova, which he has lately visited, and explained the nature of M. Struve's views on the *Milky Way* and the distance of the Fixed Stars, as set forth in his recent publication, *Etudes d'Astronomie Stellaire*, St. Petersburg, 1847. An abstract of this will probably appear in the ensuing *Notice*.

ERRATUM.

Vol. vii. p. 307, *for* sixth satellite of *Saturn*, *read* the most distant satellite.

Printed by George Barclay, Castle Street, Leicester Square.